UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/768,630	01/25/2001	Hideo Miyake	1614.1116	5739

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EXAMINER
LI, AIMEE J

ART UNIT	PAPER NUMBER
2183	

DATE MAILED: 01/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _17 November 2005_.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-8_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-8_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _25 January 2001_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1-5 and new claims 6-8 have been considered. New claims 6-8 have been added

as per Applicant's request. Claims 1, 3, and 4-5 have been amended as per Applicant's request.

Papers Submitted

2.   It is hereby acknowledged that the following papers have been received and placed of

record in the file: RCE as received on 17 November 2005; Amendment as received on 17

November 2005; and Extension of Time for 3 Months as received on 17 November 2005.

Drawings

3.   The drawings are objected to under 37 CFR 1.83(a). The drawings must show every

feature of the invention specified in the claims. Therefore, "said information being evacuated

outside said computer", i.e. data being sent over a network or outside connection to another

computer system not just outside the processor to hardware off-chip, must be shown in the

drawings or the feature(s) canceled from the claim(s). No new matter should be entered.

4.   Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to

the Office action to avoid abandonment of the application. Any amended replacement drawing

sheet should include all of the figures appearing on the immediate prior version of the sheet,

even if only one figure is being amended. The figure or figure number of an amended drawing

should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure

must be removed from the replacement sheet, and where necessary, the remaining figures must

be renumbered and appropriate changes made to the brief description of the several views of the

drawings for consistency. Additional replacement sheets may be necessary to show the

renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"

pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

be notified and informed of any required corrective action in the next Office action. The

objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making
> and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it
> pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode
> contemplated by the inventor of carrying out his invention.

6.   Claims 1, 3, and 4-5 are rejected under 35 U.S.C. 112, first paragraph, as failing to

comply with the written description requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to reasonably convey to one skilled in the

relevant art that the inventor(s), at the time the application was filed, had possession of the

claimed invention. The newly amended claims have added the limitation "said information

being evacuated outside said computer." From the claim language, the information is being sent

outside of the computer, i.e. over the network to an outside server or resource that is not within

the processor or hardware of the current entire system. This is not in the specification. The

specification merely talks about sending the information outside of the current processor, e.g.

sending the information to main memory not located on chip.

7.   Claims 1, 3, and 4-5 are rejected under 35 U.S.C. 112, first paragraph, as failing to

comply with the enablement requirement. The claim(s) contains subject matter which was not

described in the specification in such a way as to enable one skilled in the art to which it pertains,

or with which it is most nearly connected, to make and/or use the invention. The claims contain

the limitations "a plurality of programs that are not limited in number by a total hardware

resource of said computer". The specification does not explain how the plurality of programs are

not limited by the computer hardware, i.e. how the plurality of programs can exceed the amount

of memory available to the computer.

8.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

9.   Claims 1, 3, and 4-5 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

Claim Rejections - 35 USC § 102

10.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
> in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
> patent by another filed in the United States before the invention by the applicant for patent, except that an
> international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this
> subsection of an application filed in the United States only if the international application designated the United
> States and was published under Article 21(2) of such treaty in the English language.

11.   Claims 6-7 are rejected under 35 U.S.C. 102(e) as being taught by Gottlieb, U.S. Patent

Number 6,298,431 (herein referred to as Gottlieb).

12.   Referring to claims 6 and 7, taking claim 6 as exemplary, Gottlieb has taught a computer

for parallel processing, comprising

        a.   An evacuation unit which records identification information identifying a first

                program stored in one of a plurality of areas of a hardware resource being used in

parallel by at least two of a plurality of programs, if the area is necessary for

execution of a second program, and evacuates the information (Gottlieb column 2,

lines 47-62; column 3, lines 39-46; column 4, lines 19-60; column 5, line 24 to

column 6, line 9; column 7, line 52 to column 8, line 11; Figure 1; and Figure 2).

In regards to Gottlieb, the identification information is inherent to the banked

shadow registers, since some sort of identification is necessary for the system to

correctly identify which thread information must be loaded on a thread switch.

b.   A restoration unit which restores the evacuated information to the area based on

the identification information when the second program comes to a halt or to an

end (Gottlieb column 2, lines 47-62; column 3, lines 39-46; column 4, lines 19-

60; column 5, line 24 to column 6, line 9; column 7, line 52 to column 8, line 11;

Figure 1; and Figure 2).

13.   Claim 7 is substantially similar in function to claim 6 and rejected for the same reasons

set forth above. The only difference in claim 7 is a method claim and claim 6 is an apparatus

claim.

Claim Rejections - 35 USC § 103

14.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

15.   Claims 1-5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Gottlieb, U.S. Patent Number 6,298,431 (herein referred to as Gottlieb) in view of Jim Handy's

The Cache Memory Book ©1993 (herein referred to as Handy). Examiner notes that, due to the

unclear claim language, it will be assumed that the claim is referring to outside the local

memory, e.g. cache and registers.

16.   Referring to claims 1 and 8, taking claim 1 as exemplary, Gottlieb has taught a computer

which performs parallel processing of a plurality of programs in a time-division fashion,

comprising:

    a.   Hardware resources divided into a plurality of areas, the hardware resources being

used in common by a plurality of programs that are not limited in number by a

total hardware resource of said computer (Gottlieb column 2, lines 47-62; column

3, lines 39-46; column 4, lines 19-60; column 5, line 24 to column 6, line 9;

column 7, line 52 to column 8, line 11; Figure 1; and Figure 2);

    b.   An evacuation unit which records identification information identifying a first

program, and evacuates information stored in an area of said plurality of areas if

the area is necessary for execution of a second program and is being used for

execution of the first program (Gottlieb column 2, lines 47-62; column 3, lines

39-46; column 4, lines 19-60; column 5, line 24 to column 6, line 9; column 7,

line 52 to column 8, line 11; Figure 1; and Figure 2). In regards to Gottlieb, the

identification information is inherent to the banked shadow registers, since some

sort of identification is necessary for the system to correctly identify which thread

information must be loaded on a thread switch.

    c.   A restoration unit which restores the evacuated information to the area based on

the identification information when the second program comes to a halt or to an

end (Gottlieb column 2, lines 47-62; column 3, lines 39-46; column 4, lines 19-60; column 5, line 24 to column 6, line 9; column 7, line 52 to column 8, line 11; Figure 1; and Figure 2).

17.   Gottlieb has not taught said information being evacuated outside said computer. Handy has taught said information being evacuated outside said computer (Handy pages 62-64). A person of ordinary skill in the art at the time the invention was made, and as taught by Handy, copying data from local memory, in Handy's case a cache, to main memory only when needed, e.g. when local memory is full, reduces the amounts of time the main memory is accessed, thereby reducing the amount of time the main memory bus is and processor speed is increased (Handy page 63, paragraph 1). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the copying method of Handy in the device of Gottlieb to increase processor speed.

18.   Claim 8 is substantially similar in function as claim 1 and is rejected for the same reasons set forth above. The only difference is that claim 8 is for a method while claim 1 is for an apparatus.

19.   Referring to claim 2, Gottlieb has taught an interruption unit which brings about interruption processing if the area is necessary for execution of a second program and is being used for execution of the first program, wherein said evacuation unit operates as part of the interruption processing to record the identification information and to evacuate the information stored in the area (Gottlieb column 2, lines 47-62; column 3, lines 39-46; column 4, lines 19-60; column 5, line 24 to column 6, line 9; column 7, line 52 to column 8, line 11; Figure 1; and Figure 2).

20.   Referring to claim 3, Gottlieb has taught a computer which performs parallel processing

of a plurality of programs in a time-division fashion, comprising:

    a.   Hardware resources divided into a plurality of areas, the hardware resources being

          used in common by a plurality of programs that are not limited in number by a

          total hardware resource of said computer (Gottlieb column 2, lines 47-62; column

          3, lines 39-46; column 4, lines 19-60; column 5, line 24 to column 6, line 9;

          column 7, line 52 to column 8, line 11; Figure 1; and Figure 2);

    b.   An evacuation unit which records identification information identifying a first

          program, and evacuates information stored in an area of said plurality of areas if

          the area is necessary for execution of a second program and is being used for

          execution of the first program and a second area of said plurality of areas are

          necessary for execution of a second program and are being used for execution of

          the first program, said evacuation unit subsequently evacuating information stored

          in the second area when use of the second area becomes actually necessary for

          execution of the second program (Gottlieb column 2, lines 47-62; column 3, lines

          39-46; column 4, lines 19-60; column 5, line 24 to column 6, line 9; column 7,

          line 52 to column 8, line 11; Figure 1; and Figure 2). In regards to Gottlieb, the

          identification information is inherent to the banked shadow registers, since some

          sort of identification is necessary for the system to correctly identify which thread

          information must be loaded on a thread switch.

    c.   A restoration unit which restores the evacuated information to the area based on

          the identification information when the second program comes to a halt or to an

end (Gottlieb column 2, lines 47-62; column 3, lines 39-46; column 4, lines 19-

60; column 5, line 24 to column 6, line 9; column 7, line 52 to column 8, line 11;

Figure 1; and Figure 2).

21.   Gottlieb has not taught said information being evacuated outside said computer. Handy

has taught said information being evacuated outside said computer (Handy pages 62-64). A

person of ordinary skill in the art at the time the invention was made, and as taught by Handy,

copying data from local memory, in Handy's case a cache, to main memory only when needed,

e.g. when local memory is full, reduces the amounts of time the main memory is accessed,

thereby reducing the amount of time the main memory bus is and processor speed is increased

(Handy page 63, paragraph 1). Therefore, it would have been obvious to a person of ordinary

skill in the art at the time the invention was made to incorporate the copying method of Handy in

the device of Gottlieb to increase processor speed.

22.   Referring to claim 4, Gottlieb has taught a method of controlling a computer which

performs parallel processing of a plurality of programs in a time-division fashion, comprising the

steps of:

     a.   Providing hardware resources divided into a plurality of areas, the hardware

        resources being used in common by a plurality of programs that are not limited in

        number by a total hardware resource of said computer (Gottlieb column 2, lines

        47-62; column 3, lines 39-46; column 4, lines 19-60; column 5, line 24 to column

        6, line 9; column 7, line 52 to column 8, line 11; Figure 1; and Figure 2);

     b.   Recording identification information identifying a first program, and evacuating

        information stored in an area of said plurality of areas if the area is necessary for

execution of a second program and is being used for execution the first program

(Gottlieb column 2, lines 47-62; column 3, lines 39-46; column 4, lines 19-60;

column 5, line 24 to column 6, line 9; column 7, line 52 to column 8, line 11;

Figure 1; and Figure 2). In regards to Gottlieb, the identification information is

inherent to the banked shadow registers, since some sort of identification is

necessary for the system to correctly identify which thread information must be

loaded on a thread switch.

c.   Restoring the evacuated information to the area based on the identification

information when the second programs comes to a halt or to an end (Gottlieb

column 2, lines 47-62; column 3, lines 39-46; column 4, lines 19-60; column 5,

line 24 to column 6, line 9; column 7, line 52 to column 8, line 11; Figure 1; and

Figure 2).

23.   Gottlieb has not taught said information being evacuated outside said computer. Handy

has taught said information being evacuated outside said computer (Handy pages 62-64). A

person of ordinary skill in the art at the time the invention was made, and as taught by Handy,

copying data from local memory, in Handy's case a cache, to main memory only when needed,

e.g. when local memory is full, reduces the amounts of time the main memory is accessed,

thereby reducing the amount of time the main memory bus is and processor speed is increased

(Handy page 63, paragraph 1). Therefore, it would have been obvious to a person of ordinary

skill in the art at the time the invention was made to incorporate the copying method of Handy in

the device of Gottlieb to increase processor speed.

24.   Referring to claim 5, Gottlieb has taught a method of controlling a computer which

performs parallel processing of a plurality of programs in a time-division fashion, comprising the

steps of:

       a.   Providing hardware resources divided into a plurality of areas, the hardware

                resources being used in common by a plurality of programs that are not limited in

                number by a total hardware resource of said computer (Gottlieb column 2, lines

                47-62; column 3, lines 39-46; column 4, lines 19-60; column 5, line 24 to column

                6, line 9; column 7, line 52 to column 8, line 11; Figure 1; and Figure 2);

       b.   Recording identification information identifying a first program, and evacuating

                information stored in an area of said plurality of areas if the area is necessary for

                execution of a second program and is being used for execution the first program

                and are being used for execution of the first program, followed by subsequently

                evacuating information stored in the second area when use of the second area

                becomes actually necessary for execution of the second program (Gottlieb column

                2, lines 47-62; column 3, lines 39-46; column 4, lines 19-60; column 5, line 24 to

                column 6, line 9; column 7, line 52 to column 8, line 11; Figure 1; and Figure 2).

                In regards to Gottlieb, the identification information is inherent to the banked

                shadow registers, since some sort of identification is necessary for the system to

                correctly identify which thread information must be loaded on a thread switch.

       c.   Restoring the evacuated information to the area based on the identification

                information when the second programs comes to a halt or to an end (Gottlieb

                column 2, lines 47-62; column 3, lines 39-46; column 4, lines 19-60; column 5,

line 24 to column 6, line 9; column 7, line 52 to column 8, line 11; Figure 1; and

Figure 2).

25.   Gottlieb has not taught said information being evacuated outside said computer. Handy

has taught said information being evacuated outside said computer (Handy pages 62-64). A

person of ordinary skill in the art at the time the invention was made, and as taught by Handy,

copying data from local memory, in Handy's case a cache, to main memory only when needed,

e.g. when local memory is full, reduces the amounts of time the main memory is accessed,

thereby reducing the amount of time the main memory bus is and processor speed is increased

(Handy page 63, paragraph 1). Therefore, it would have been obvious to a person of ordinary

skill in the art at the time the invention was made to incorporate the copying method of Handy in

the device of Gottlieb to increase processor speed.

Response to Arguments

26.   Applicant's arguments with respect to claims 1-8 have been considered but are moot in

view of the new ground(s) of rejection.

Conclusion

27.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Aimee J. Li whose telephone number is (571) 272-4169. The

examiner can normally be reached on M-T 7:30am-5:00pm.

28.   If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Eddie Chan can be reached on (571) 272-4162. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

29.   Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AJL
Aimee J. Li
22 January 2006

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